

MEMORY WITH ROW REDUNDANCY

CROSS REFERENCE TO RELATED APPLICATIONS

[0001] This is a continuation application of U.S. Patent Application Serial No. 10/199,728 (~~allowed~~), filed July 19, 2002, titled "MEMORY WITH ROW REDUNDANCY," ^{now U.S. Patent No. 6,711,056,} which application is commonly assigned, the entire contents of which are incorporated herein by reference, and which application is a Continuation-in-Part of ^{now U.S. Patent No. 6,469,932} U.S. Application Serial No. 09/804,125 filed March 12, 2001. [^]

TECHNICAL FIELD

[0002] The present invention relates generally to memory devices and in particular the present invention relates to a memory with row redundancy and its operation.

BACKGROUND OF THE INVENTION

[0003] Memory devices are typically provided as internal storage areas in a computer. One type of memory used to store data in a computer is random access memory (RAM). RAM is typically used as main memory in a computer environment. Most RAM is volatile. That is, RAM generally requires a steady flow of electricity to maintain its contents. As soon as the power is turned off, all data stored in the RAM is lost.

[0004] Another type of memory is a non-volatile memory. A non-volatile memory is a type of memory that retains stored data when power is turned off. A flash memory is a type of non-volatile memory. An important feature of a flash memory is that it can be erased in blocks instead of one byte at a time. Each block of memory in a memory array of the flash memory comprises rows and columns of memory cells. Many modern computers have their basic I/O system (BIOS) stored on flash memory chips.

[0005] As with other memory devices, defects can occur during the manufacture of a flash memory array having rows and columns of memory cells. Typical defects can